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## NOTICE OF ALLOWANCE AND FEE(S) DUE

37509 7590 04/29/2008

DECHERT LLP  
P.O. BOX 390460  
MOUNTAIN VIEW, CA 94039-0460

EXAMINER

BUDD, PAUL A

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 04/29/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,342	12/05/2003	Zhidan Li Tolt	372668-00400 (362842)	1341

TITLE OF INVENTION: LOW VOLTAGE ELECTRON SOURCE WITH SELF ALIGNED GATE APERTURES, AND LUMINOUS DISPLAY USING THE ELECTRON SOURCE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$0	\$720	\$720	07/29/2008

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

**HOW TO REPLY TO THIS NOTICE:**

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

## PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to:** **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax (571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

37509            7590            04/29/2008  
**DECHERT LLP**  
**P.O. BOX 390460**  
**MOUNTAIN VIEW, CA 94039-0460**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

### **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,342	12/05/2003	Zhidan Li Tolt	372668-00400 (362842)	1341

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nonprovisional	YES	\$720	\$0	\$720	\$720	07/29/2008
EXAMINER	ART UNIT	CLASS-SUBCLASS				
BUDD, PAUL A		2815	313-310000			

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,  
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

4a. The following fee(s) are submitted:

- Issue Fee  
 Publication Fee (No small entity discount permitted)  
 Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- A check is enclosed.  
 Payment by credit card. Form PTO-2038 is attached.  
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.  b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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37509	7590	04/29/2008	EXAMINER	
DECHERT LLP P.O. BOX 390460 MOUNTAIN VIEW, CA 94039-0460		BUDD, PAUL A		
		ART UNIT		PAPER NUMBER
		2815		DATE MAILED: 04/29/2008

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/707,342	TOLT, ZHIDAN LI	
	<b>Examiner</b>	<b>Art Unit</b>	
	PAUL A. BUDD	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to RCE dated 18 March 2008.
2.  The allowed claim(s) is/are 40-52,55,57,64-68,71,74-81 and 84-86.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
 of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                                               |                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                                              | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                          | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date <u>3/18/2008</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                    | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|                                                                                                                               | 9. <input type="checkbox"/> Other _____.                                               |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/18/2008 has been entered.

### ***Information Disclosure Statement***

2. The applicant's submitted IDS document dated 18 March 2008 and the relevance of those IDS documents to the instant application listed therein will be addressed directly below.

3. Of the submitted IDS US Patent documents (3/18/08), the Simpson reference (6,692,324) and the Guillom et al. (6,858,455) reference, were considered the closest to the applicant's invention but did not teach all of the limitations of the previously allowed claims **51, 55, and 64**. While Simpson appeared to teach a single nano-filament [FIG. 3G & 5] formed in the center [column 9 lines 50-60] of an aperture but Simpson did not teach all of the other limitations of claims **51, 55, and 64** such as the requirement that *the nanostructure be embedded within the embedding material* and the *presence of an insulator layer* between the embedding layer and the gate electrode (claim 64 has even more additional limitations not taught by Simpson).

4. The remaining IDS references: Filas et al. reference (6,741,019), Jin reference (6,864,162), and Nakamoto (6,664,727) also did not anticipate the applicant's claims **51**, **55**, and **64**. Nakamoto taught multiple emitters per aperture. Filas' figure 5A was the closest (single emitters apparently centered) embodiment to the applicant's claimed invention but lacked the apertures as well as the insulator and gate electrode. Jin's figure 5c is his closest embodiment to the applicant's claimed invention but Jin is missing the insulator layer on top of the embedding material.

5. With regards to the 11/467,876 application's Office Action submitted by the applicant as part of the IDS statement dated 18 March 2008, the Jin (6,283,812, 6,250,984) references, Cho et al. (2003/0122467) reference, Yamamoto (2003/0001490) reference, Jeong et al. (20030127960) and the Nakamoto (2002/0060514) references did not teach all of the limitations of the applicant's claims **51**, **55**, and **64**. With an abundance of caution, all of the references of record for 11/467,876 (all of 11/467,876's references in the eDAN reference manager) were reviewed for anticipation and none was found.

6. In summary, none of the references submitted with the IDS anticipated the applicant's claimed invention for the reasons stated above and for the reasons stated in the "Reasons for Allowance" below. Additionally, it was not considered obvious to combine these art to reject the applicant's claimed invention. For the record: the IDS has been considered and the Allowance below is sustained and not withdrawn.

7. While certainly being relevant to the applicant's invention, none of the submitted documents anticipated the applicant's claimed invention and thus the allowance is maintained.

***Remarks***

8. Paragraphs 9-13 below are repeated from the Office Action dated 16 August 2007 and the Office Action dated 27 November 2007 for completeness.

***Response to Amendment***

9. Claims **40-57, 64-68, 70, 71, and 74-86** are pending in the above referenced application. Claims **53, 54, 56, 70, 82** and **83** are cancelled without prejudice or surrender of subject matter. The amendments to Claims **55, 64, and 75** *in the applicant's response dated 8 August 2007* to remove minor informalities are accepted and no new matter is entered.

***Drawings***

10. The drawings submitted 5 December 2005 are accepted. This is a clarification of the Office action dated 8 June 2007 that failed to indicate if the drawings were accepted. The Office had intended to indicated that they were accepted. This is clarified at the request of the applicant.

**EXAMINER'S AMENDMENT**

11. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Please change the title of the invention from "LOW VOLTAGE ELECTRON SOURCE WITH SELF ALIGNED GATE APERTURES, FABRICATION METHOD THEREOF, AND LUMINOUS DISPLAY USING THE ELECTRON SOURCE"

To

- - LOW VOLTAGE ELECTRON SOURCE WITH SELF ALIGNED GATE APERTURES, AND LUMINOUS DISPLAY USING THE ELECTRON SOURCE - - .

***Allowable Subject Matter***

12. Claims **40-52, 55, 57, 64-68, 71, 74-81** and **84-86** are allowed. The following is a statement of reasons for the indication of allowable subject matter: Claim **51** is allowable for at least the limitations that "the embedding material having a surface above which portions of the nano-structures protrude to emit electrons" and "wherein the nano-structures comprise a nonconductive core and a conductive shell". Claim **55** is allowable for at least the limitations that "the embedding material having a surface above which portions of the nano-structures protrude to emit electrons" and "wherein the insulator and the embedding material are composed of the same dielectric

material". Claim **64** is allowable for at least the limitations that "the embedding material having a surface above which portions of the nano-structures protrude to emit electrons" and "an anode plate including a transparent anode electrode disposed over a glass substrate and a phosphor screen disposed over the anode electrode, the anode plate being positioned opposite to said electron source with a vacuum gap disposed therebetween". Claims **51**, **55**, and **64** recite "wherein each aperture *exposes a single nano-structure* and is concentrically self-aligned with the end of the nano-structure" that is important to structurally distinguish over the prior art. The prior art of record such as Lee (2005/0067935), Hsu (6,448,701), and Nakamoto (6,097,138) were the closest art found but did not teach all of the limitations claimed by the applicant.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Budd whose telephone number is 571-272-8796. The examiner can normally be reached on Monday to Friday 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PAB

/Jerome Jackson Jr./  
Primary Examiner, Art Unit 2815